St. Maries Creosote Site
Remedial Investigation/Feasibility Study

STATEMENT OF WORK

August 2001

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INTRODUCTION

This Statement of Work ("SOW") is attached to the St. Maries Creosote Site ("Site") Administrative Order on Consent ("AOC") ("Order"). The purpose of this SOW is to provide EPA requirements for a remedial investigation/feasibility study ("RI/FS") at the St. Maries Creosote Site, located in St. Maries, Idaho.

The purpose of the RI/FS is to further investigate the nature, extent, and mobility of contamination at the Site, to assess the potential risk to human health and the environment, and develop and evaluate potential remedial alternatives to eliminate, reduce, or control the risks. The RI and FS are related and will be conducted in iterations to the extent that the existing Site data and new data collected in the RI influences the development of remedial alternatives in the FS.

The Respondents will conduct the RI/FS, including a baseline risk assessment, and will produce RI and FS deliverables that are in accordance with this SOW, the RI/FS Work Plan, the Guidance for conducting Remedial Investigations and Feasibility Studies under CERCLA (U.S. EPA, October 1988) (hereinafter called the RI/FS Guidance), the National Contingency Plan (NCP), as revised (40 CFR Part 300, March 8, 1990) and other guidance and policies that EPA has developed for conducting remedial investigations and feasibility studies that are listed in Attachment 1 to this SOW or identified by EPA during the course of the RI/FS, as well as additional requirements in the Order. Community relations' components of the RI/FS will be the responsibility of EPA in coordination with the Coeur d'Alene Tribe (Tribe), with input from the Respondents, as appropriate.

The completed RI and FS, including the risk assessment, produced by the Respondents will, along with the Administrative Record, form the basis for EPA's selection (in consultation with the Tribe) of response actions to be taken at this Site. A decision document for cleanup will be prepared upon the completion of the RI/FS. The cleanup action alternative(s) selected by EPA will meet the cleanup standards and Applicable or Relevant and Appropriate Requirements (ARARs) specified in Section 121 of CERCLA.

As specified in Section 104(a)(1) of CERCLA, as amended by SARA, EPA, in consultation with the Tribe will provide oversight of the Respondents RI/FS work. The Respondents will support EPA's and the Tribe's initiation and conduct of activities related to the implementation of oversight activities and will coordinate with EPA and the Tribe on all Site-related activities. The Respondents will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the Order.

The work conducted pursuant to this AOC/SOW will focus on characterization of the contaminant fate and transport, delineation of the areal extent of the contaminant plume in the groundwater and extent of contamination that had migrated to the St. Joe River, defining soil contamination associated with the former wood-treating facility, assessment of risk, and evaluation of potential cleanup alternatives.

SITE BACKGROUND

The St. Maries Creosote Site is located on the outskirts of the town of St. Maries, Idaho (pop. 2500) along the south bank of the St. Joe River. The Site is located within the boundaries of the Coeur d'Alene Indian Reservation. The facility operated as a creosote wood pole treating plant beginning in the late 1930s and was later dismantled and the area leveled. The Site was most recently used for pole peeling, sorting, and storage.

In December 1998, the City of St. Maries reported to the federal National Response Center a product sheen on the riverbank and in the water of the St. Joe River. On January 26, 1999, EPA issued a Unilateral Administrative Order ("UAO") to both the City of St. Maries (City), who has leased the property to various entities since the 1930s, and Carney Products Company, Ltd. (Carney Products), the current leasee of the property. The UAO required removal of observed creosote seeps and creosote contaminated soil along the riverbank, and the performance of a Site investigation to characterize soil and groundwater contamination in and around the area of the former wood treating facility. Since notification of the release, the Respondents have maintained boom and sorbent pads at the Site in an effort to control any impacts to surface water from the upland area.

In February 1999, the City and Carney Products conducted an environmental assessment at the Site that included soil, groundwater and sediment sampling and analysis. Results of this assessment showed elevated levels of polynuclear aromatic hydrocarbon (PAH) contamination in the soil and groundwater to depths of 45 feet below ground surface, in the riverbank soils, in the surface water, and in the St. Joe River sediments near the Site. Upland soil samples were primarily located immediately adjacent to the former location of the treatment vats in an area measuring approximately 100 by 100 feet.

Also in February 1999, the City and Carney Products conducted a removal action at the Site with EPA oversight. That action included the excavation and removal from the Site of approximately 195 tons of debris and contaminated soil along the St. Joe River bank in the area of the observed seeping creosote. The area of excavation was about 85 feet long, 10 feet wide and up to 9 feet deep. Since completion of the removal action, however, creosote has been observed intermittently in the river and appears to be migrating upward seeping from the river bottom adjacent to the Site.

EPA conducted additional sampling in November 1999, to further characterize the extent of contamination of the river sediments. The results of this sampling event indicated elevated levels of PAHs in the St. Joe River sediments, particularly along the riverbank in front of the Site. Contamination was also detected in samples collected from the river sediments as far as 500 feet downstream of the Site and 50 feet beyond the south shore of the St. Joe River.

Substantial work was completed by the Respondents in determining the extent of contamination in the soil and groundwater of the upland portion of the Site. This work included the installation of 8 groundwater monitoring wells (4 shallow and four deep), 18 subsurface soil

borings and the collection of soil, groundwater and riverbank samples for analyses. Additionally, approximately 190 soil, sediment, groundwater, and surface samples had been collected and analyzed by Ecology and Environment (E&E).

The Study Area for this RI will focus on the area of the former wood treating facility and the river immediately north of the treating facility. The Study Area boundaries will be expanded if, during the RI, contamination is detected at the current Study Area boundaries, i.e., the investigation will continue until contamination is no longer detected above ARARs. Further, if information becomes available that verifies a source area outside of the current Study Area, or if EPA believes that information gathered in the RI indicated a potential for contamination elsewhere at the Site, additional sampling will be required.

EPA proposed to add the Site to the National Priorities List (NPL) on December 1, 2000. However, at this time the Site has not been listed.

TASK 1 COMMUNICATION

It is anticipated that regularly scheduled meetings of the Respondents, EPA, and the Tribe will be held to review progress during the RI/FS process. As appropriate, in addition to the Tribe, Natural Resource Trustees (U.S. Fish and Wildlife Service) will be included in technical meetings. Following each meeting, e-mail memoranda will be sent to all participating parties summarizing the topics discussed.

As part of this task, the Respondents will develop a website for the technical data, such that EPA, the U.S. Army Corps of Engineers (EPA's technical consultant), and the Tribe can have access to the data and data interpretations and participate in the decision-making process throughout the RI/FS.

TASK 2 SCOPING

Scoping is the initial planning process of the RI/FS and has been initiated by EPA. During the scoping process, the specific objectives of the RI/FS, including the preliminary remediation goals ("PRGs"), are determined by EPA in consultation with the Tribe. Scoping is therefore initiated prior to negotiations between the Respondents and EPA, and is continued, repeated as necessary, and refined throughout the RI/FS process.

In addition to developing the specific objectives of the RI/FS, EPA in consultation with the Tribe, has defined general investigation objectives, remedial action objectives, and a management framework for the Site, as described below. Consistent with the general management framework, the RI/FS will be planned by the Respondents and EPA, in consultation with the Tribe, and documented by the Respondents in an RI/FS Work Plan. Because the entirety of work required to complete the RI/FS is not fully known at this time, and is phased in accordance with the complexity and the amount of available information, it may be necessary to modify the RI/FS Work Plan during the RI/FS to satisfy the objectives of the study.

The primary objectives of the RI/FS for the St. Maries Creosote Site are:

- Further determine the nature and extent of creosote and other related contaminants (Site contaminants of concern), in the soil and groundwater at the former wood-treating facility.

- Determine the nature and extent of Site contaminants of concern in the sediments of the St. Joe River.

- Estimate the contaminant migration pathways including fluxes and rates through zones of migration.

- Characterize any non-aqueous phase liquids (NAPL) in the soil or groundwater within the Study Area.

- Identify the Applicable and Relevant and Appropriate Requirements (ARARs) for Site remediation.

- Evaluate the potential risk, if any, of Site contaminants of concern to nearby domestic water users and users of the St. Joe River.

- Evaluate the potential human health and ecological risks posed by the contaminants in the soil, groundwater, surface water, and sediment.

- Evaluate impacts to Tribal water quality standards, which are potential ARARs.

- Develop Conceptual Site Model

The preliminary remedial action objectives ("RAOs") for the St. Maries Creosote Site, based on available information, include the following:

- Control or eliminate ongoing sources of creosote contamination, or other Site contaminants of concern, to the groundwater and to the surface water and sediment of the St. Joe River.

- Attain Tribal water quality standards in the St. Joe River.

- Protect the integrity of any nearby domestic water supplies impacted by Site contaminants of concern.

- To the extent technically practicable, prevent storm water runoff containing contaminated soil from reaching the St. Joe River.

- Reduce or eliminate human and ecological exposure to any Site-related contaminated media that may lead to potential current or future unacceptable risk.

The strategy for the general management of the Site is as follows:

- The RI will be conducted in an expeditious manner with the goal of completing the field sampling within one sampling season and completing the RI/FS within two years from the effective date of the Consent Order.

- Technical project planning will be used to provide flexibility in the execution of work plans which will allow for adjustment in investigation strategies based on information acquired or information that has been previously gathered.

- The Respondents will conduct a risk assessment to estimate and evaluate the impacts that contamination associated with this Site has or may have on humans and the eco system.

- During Respondents' scoping of the RI/FS, Respondents will meet with EPA and the Tribe to discuss project planning decisions and special concerns associated with the Site. Where approvals or comments are required with respect to Respondents' RI/FS work pursuant to the Administrative Order on Consent and the attachments thereto, EPA will provide such approval or comments in consultation with the Tribe. EPA may forward comments from the Tribe that have been adopted by EPA.

TASK 3 PROJECT MANAGEMENT

This task is intended to ensure that the Respondents carefully manages all aspects of the work required herein and reports to EPA and the Tribe in a timely and consistent manner. This work shall include, but not be limited to:

Preparation of a Draft and Final Project Management Plan that will include the following:

- A project schedule, including field work, analytical work, and deliverable due dates, etc. The schedule will be revised as necessary by EPA, in consultation with the Tribe;

- Deliverable distribution list (to the U.S. Army Corps of Engineers, EPA's technical consultant, EPA, the Tribe, Tribal consultant, Idaho Department of Environmental Quality, and others to be specifically defined in the Final Project Management Plan);

- A list (which will be updated as work proceeds) of selected contractors, subcontractors, including laboratories, drillers, disposal contractors, that will be identified and contracted by the Respondents;

- A Draft and Final Data Management Plan to ensure coordination with other Site activities, including providing EPA and the Tribe with analytical data within five (5) working days of receipt, in an electronic format (as agreed to by EPA, in consultation with the Tribe, and the Respondents) and other data management procedures to be specifically defined in the Final Data Management Plan. The data system will be used for both past and future data and will be integrated with knowledge about historical land uses. The selected system must be able to handle graphical, GIS, physical, biological, as well as chemical data so that it will be useful for Remedial Design and Remedial Action work as well as the RI/FS. The Data Management Plan will require the preparation of Site maps that include cross sections, characterization transects, historic images, topographic information, physical features, hydraulic head data in 3 dimensions, isopleth maps, characterization logs, and areas of non-aqueous phase liquids ("NAPL") and contaminants of concern ("COCs"). Site maps shall also show locations of characterization logs, and soil, groundwater, surface water, and sediment samples, both vertically and horizontally. At the conclusion of the RI, the Respondents shall deliver to EPA and the Tribe a complete data base that includes all data collected during the RI/FS.

- Schedule and format of monthly progress reports (including project status, work completed, schedule compliance, issues of concern, work to be performed, and other information to be specifically defined in the Final Project Management Plan); and

- Schedule and topic for project meetings that may be necessary.

Project Management Deliverables

1. Draft/Final Project Management Plan (Major Deliverable)
2. Draft/Final Data Management Plan
3. Project schedule
4. Monthly reports
5. Meeting minutes

TASK 4 COMMUNITY RELATIONS

EPA will be responsible for the development and implementation of community relations activities at the St. Maries Creosote Site. The community relations planning steps to be performed by EPA include conducting community interviews and developing a Community

Involvement Plan (CIP) in cooperation with the Tribe. EPA will define the Respondents' community responsibilities, if any, in the CIP. Although implementation of the community relations plan is the responsibility of EPA, EPA will coordinate community relations activities with the Respondents and may request the Respondents to assist by providing information regarding the Site's history, participating in public meetings, or by providing input for fact sheets EPA will prepare for distribution to the general public. The extent of the Respondents' involvement in community relations activities is left to the discretion of EPA, in consultation with the Tribe. Respondents will coordinate all independent community relations activities with EPA.

TASK 5 REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)

Subtask 5.1 Project Planning (RI/FS Guidance, Section 2.2)

The Respondents shall collect and analyze existing Site background information and data to assist in planning the scope of the RI/FS.

a. *Collect and analyze existing data and identify data needs*

Before planning RI/FS activities, all existing Site data, aerial photographs, and Site architectural drawings will be thoroughly compiled and reviewed by the Respondents, and presented in a Summary of Data Gaps Report. Specifically, this report will include presently available data relating to the varieties and quantities of hazardous substances at the Site, past operation and disposal practices, and the existing data pertaining to soil, groundwater and sediment impacts. The Summary of Data Gaps Report will define the location, dimensions, physical condition and varying concentrations of each contaminant throughout each media, and an estimation of the extent of contaminant migration through each of the affected media. [The Respondents will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources.] The Summary of Data Gaps Report will be utilized in determining additional data needed to characterize the Site, better define potential ARARs, and develop a range of preliminary remedial action alternatives. The Respondents will use the Data Quality Objectives ("DQOs") process to establish and document recommended DQOs for data to be collected for the investigation.

b. *Develop Preliminary Remedial Action Alternatives*

Once the existing background information for the Site has been analyzed and an understanding of the potential risks at the Site has been determined, the Respondents will preliminarily identify the remedial action alternatives to focus the scope of the RI/FS in order to achieve the RAOs identified above. The remedial action alternatives will be documented in the Summary of Data Gaps Report. The range of potential remedial alternatives will encompass, where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that

involve containment with little or no treatment; and a no-action alternative. The remedial alternatives will also describe whether presumptive remedy approaches outlined in EPA guidance are applicable for this Site. The remedial alternatives will rely extensively on technologies that have been determined to be viable and included at other wood treater sites. The preliminary screening will focus on published reports including *Presumptive Remedies for Soils, Sediments and Sludges at Wood Treater Sites (EPA Report Number 540-R-95-128) and Treatability Studies for Wood Preserving Sites (EPA Report Numbers 68-C2-0108, 68-C5-0001 and 600-R-98-026).*

c. *Determine the Need For Treatability Studies*

For remedial actions involving treatment, treatability studies may be required, except where the Respondents can demonstrate to EPA's satisfaction, after consultation with the Tribe, that they are not needed. The Summary of Data Gaps Report will identify potential remedial alternatives that may require treatability studies and that may have specific data requirements. Where treatability studies are needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Site RI/FS activities. A literature survey may be necessary to gather more information on candidate technologies. The Respondents will use the presumptive remedy guidance and cleanup methods that have been effective at other former wood-treater cleanup projects. Task 8 further describes treatability studies requirements and testing.

d. *Identify Preliminary and Potential ARARs*

The Respondents will submit a preliminary identification of potential State, Tribal, and Federal ARARs (chemical-specific, location-specific, and action specific) in the RI/FS Work Plan (Subtask 5.2) to assist in the refinement of remedial action objectives, and the initial identification of remedial action alternatives including ARARs associated with particular actions. ARAR identification will continue as Site conditions, contaminant distribution, and remedial action alternatives are further defined.

Subtask 5.2 RI/FS Work Plan

The purpose of the RI/FS Work Plan ("Work Plan") is to document decisions and evaluations completed during the scoping process and to present the framework in which the RI/FS will be conducted. The Work Plan and associated Sampling and Analysis Plan ("SAP") and Site-Specific Health and Safety Plan ("HASP") will include a comprehensive description and rationale for the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. The Work Plan should be developed in conjunction with the SAP and HASP, although each plan may be delivered under separate cover. In addition, the Work Plan will be developed to support the Risk Assessment that will be prepared. The Work Plan and SAP will be submitted to EPA and the Tribe as a Draft for review and approval by EPA, in consultation with the Tribe. EPA approval of the Project Management Plan, the

RI/FS Work Plan, the SAP, the Data Management Plan, and the QAPP is required prior to the initiation of field activities.

The Work Plan will present the preliminary Site Conceptual Model and the specific objectives of the RI/FS. The Work Plan will include a Site background summary and description including the geographic location of the Site, and a description of the Site's physiography, hydrology, geology, meteorology, demographics, ecological, and natural resource features; a synopsis of the Site history and a description of previous responses that have been conducted at the Site by local, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Site; and a description of any remaining underground utilities and structures. The Work Plan will include an organizational chart which describes responsibilities and authorities of personnel. The Respondents should consider use of investigation tools to allow field decision-making.

The Work Plan will include a listing and brief description of: 1) the preliminary remedial action objectives of the RI/FS; 2) the preliminary range of broadly defined potential remedial action alternatives and associated technologies; 3) the preliminary identification of potential State, Tribal, and Federal ARARs; and 4) the determination of the need for treatability studies and supporting data. The major part of the Work Plan is a detailed description of the tasks to be performed, and information needed for each task, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA and the Tribe. The Respondents will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required Work Plan.

If Respondents identify additional data requirements during the RI/FS process, the Respondents will submit a technical memorandum documenting the need for additional data, and identifying the DQOs in accordance with paragraph 38 of the AOC. If additional data and analysis needs are identified by EPA, in consultation with the Tribe, which are consistent with the SOW and objectives of this RI/FS, EPA will notify Respondents of the additional tasks in accordance with paragraph 40 of the AOC.

Subtask 5.3 Sampling and Analysis Plan

The Respondents will include with the RI/FS Work Plan a Sampling and Analysis Plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The SAP provides a mechanism for planning field activities and will include a Field Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP).

The FSP will define in detail the sampling and data gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. Upon request by the

Respondents, EPA will provide templates that have been developed for similar sites and previously approved by EPA.

The Respondents will submit information to EPA and the Tribe, in advance of fieldwork, which indicates that each laboratory they may use is qualified to conduct the proposed work. This information includes use of methods and analytical protocols for the contaminants of concern in the media of concern within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the Site. The laboratory must have and follow a QA/QC program approved by EPA. If a laboratory, not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods and QA/QC procedures approved by EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that the Respondents submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications. The Respondents will provide assurances that upon reasonable notice, EPA and the Tribe has access to laboratory personnel, equipment, and records for sample, collection, transportation, and analysis.

Subtask 5.4 Health and Safety Plan

A Site-specific Health and Safety Plan ("HASP") will be prepared in conformance with the Respondents' health and safety program, and in compliance with the Federal Occupational Safety, Health Agency ("OSHA") regulations and protocols. The HASP will include the eleven (11) elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. It should be noted that EPA does not "approve" the Respondents' health and safety plan, but rather EPA reviews it to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment. The EPA, Tribe, or persons under contract to the EPA or Tribe, will be required to read and sign the HASP prior to entry on the Site.

RI/FS Deliverables

The Respondents shall provide EPA and the Tribe with the following deliverables as part of the RI:

1. Summary of Data Gaps Report
2. RI/FS Work Plan (Major Deliverable)
3. Sampling and Analysis Plan, which includes the Field Sampling Plan and Quality Assurance Project Plan (Major Deliverable)
4. Health and Safety Plan (Major Deliverable)

TASK 6 SITE CHARACTERIZATION & IMPLEMENTATION OF THE RI/FS WORK PLAN (RI/FS Guidance, Section 3)

The Respondents will perform the RI/FS activities in accordance with the RI/FS Work Plan, the SAP, and the HASP. The Respondents will notify EPA and the Tribe by telephone and/or e-mail at least two weeks (14 days) in advance of each major mobilization event, and within seven (7) days of minor events (routine monitoring well sampling or water level evaluations), and within five (5) days of completion of each field activity. Analyses of data collected for Site characterization will meet the DQOs developed in the QA/QC plan (or revised during the RI).

The field investigation includes the gathering of data to define: Site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the Site. At a minimum, this investigation shall address the following:

a. *Implement and Document Field Support Activities*

Information gathered during the field investigation will be documented by the Respondents in well-maintained field logs and laboratory reports. Daily contractor quality control activities will be documented in a daily report. The methods of documentation must be specified in the Work Plan and/or in the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies. The Respondents will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the Work Plan will not be included in any Site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondents will establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

b. *Investigate and Define Site Physical and Biological Characteristics*

The Respondents will collect data on the physical and biological characteristics of the Site and any potentially impacted areas in the vicinity of the Site, including the physiography, geology, and hydrology, and specific physical characteristics identified in the Work Plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts; and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the Site's physical characteristics the Respondents will also obtain sufficient engineering data for contaminant fate and transport calculations, and development and screening of remedial action alternatives.

c. *Define Sources of Contamination*

The Respondents will locate each source of contamination associated with the Site. For each location, the areal extent and depth of contamination will be determined. Discharge points to the St. Joe River will be assessed and the rates of discharge and variability of flux will be evaluated as a metric for demonstrating the effectiveness of the chosen remedial alternative. The physical and chemical characteristics and composition will be determined for all located sources of contamination. The Respondents will also investigate the extent and rate of migration of Site contamination as well as its volume and any changes in its physical or chemical characteristics to provide for a comprehensive understanding of the nature, extent, and mobility of contamination at the Site. Hydraulic characteristics of the aquifer will be determined in 3 dimensions. The Respondents shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of contamination at the Site will include analyzing the potential for contaminant release (e.g., long term leaching or product discharge from soil), contaminant mobility and persistence, and engineering characteristics pertinent to evaluating remedial actions.

d. *Describe the Nature and Extent of Contamination*

The Respondents will gather information to describe the nature and extent of contamination in all media in a Final Site Conceptual Model. To describe the nature and extent of contamination, the Respondents will utilize the information on contaminant of concern concentrations, Site physical and biological characteristics and sources of contamination in order to give a preliminary estimate of the distribution of contaminants that may have migrated from the Site.

e. *Define Contaminant Fate and Transport*

Results of the physical characteristics, source characteristics, extent of contamination analyses, and other information, as appropriate, will be utilized to estimate and predict contaminant fate and transport from the Site. This evaluation will include determination of the actual and potential magnitude of releases from the sources, the horizontal and vertical spread of contamination, as well as the mobility and persistence of contaminants in the Site's specific environment. Where Respondents proposes that modeling is appropriate, such models shall be identified to EPA and the Tribe in a Technical Memorandum on Modeling of Site Characteristics prior to their use and at the time the Respondents is considering them. All data and programming with respect to modeling, including any proprietary programs, shall be made available to EPA and the Tribe together with a sensitivity analysis.

Site Characterization/RI Deliverables

The Respondents shall provide EPA and the Tribe with the following deliverables as part of the RI:

1. Technical Memorandum on Modeling of Site Characteristics

   Where Respondents propose that modeling is appropriate, Respondents shall submit a technical memorandum on proposed modeling of the Site characteristics, as described in and within the time frame specified in the Work Plan.

2. Final Site Conceptual Model

   The Respondents will refine the Site Conceptual Model and submit as part of the Draft RI Report. Respondents will determine the Site's physiography, geology, and hydrology and define the potential surface and subsurface pathways of migration through the Site Conceptual Model. The Respondents will identify the sources of contamination and estimate the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. The Respondents will also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site.

3. Preliminary Site Characterization Summary Report

   After completing field sampling and analysis, the Respondents will prepare a concise Preliminary Site Characterization Summary Report. This summary will review the investigative activities that have taken place, and describe and display Site data documenting the location and characteristics of surface and subsurface features and the contamination at the Site, including the affected medium, and the location, types, estimated quantity, physical state, and concentration of contaminants. In addition, the location, dimensions, characteristics and concentrations of each contaminant will be documented. The Site characterization summary will provide a preliminary reference for developing the risk assessment, and evaluating the development and screening of remedial action alternatives, and the refinement and identification of ARARs. The Preliminary Site Characterization Summary Report will also include a description and interpretation of any modeling results; if a need for modeling was determined. The Preliminary Site Characterization Summary Report will also include recommendation and rationale for identification of any interim response measures (“IRM”) and/or additional data collection efforts.

The Preliminary Site Characterization Summary Report is a precursor to the RI Report and will be submitted to EPA and the Tribe for review within the time frame specified in the Work Plan. EPA's comments can be addressed and the revised Preliminary Site Characterization Summary Report incorporated into the Draft RI Report (i.e., a separate revised summary report will not be required).

4. Remedial Investigation ("RI") Report (Major Deliverable)

The Respondents will prepare and submit a Draft Remedial Investigation Report to the EPA and the Tribe for review and for approval by EPA, in consultation with the Tribe. The RI report shall be consistent with the SOW, the Work Plan, and related Plans, and shall summarize results of field activities to characterize the Site, sources of contamination, nature and extent of contamination, and the fate and transport of contaminants. The Respondents will refer to the RI/FS Guidance for an outline of the report format and contents. Respondents shall submit the Draft RI Report within the time frame specified in the Work Plan. Following comments by EPA in consultation with the Tribe, Respondents will prepare a Final RI Report which satisfactorily addresses EPA comments.

TASK 7 RISK ASSESSMENT

The purpose of this task is to plan, prepare for, and perform the Human Health and Ecological Risk Assessments for the Site, and to prepare necessary risk assessment documents. The Respondents will prepare a draft baseline risk assessment using data from the RI, and a final risk assessment incorporating EPA's comments, prepared in consultation with the Tribe. The objective of the risk assessment is to characterize and quantify the current and potential human health and ecological risks that may exist if no further remedial action is taken. The Work Plan shall clearly describe the activities to be conducted for the human health and ecological risk assessments.

The Risk Assessment shall be completed in accordance with the guidance, procedures, assumptions, methods and formats contained in relevant guidance documents listed in Attachment 1.

The Baseline Risk Assessment shall be prepared in two components: (1) Human Health Risk Assessment and (2) Ecological Risk Assessment.

a. *Human Health Risk Assessment*

The Human Health Risk Assessment shall address the following: (1) Definition of objective, (2) characterization of Site and potential receptors, (3) Hazard identification, (4) Dose-response assessment, (5) Exposure assessment, (6) Risk characterization, and (7) Limitations/uncertainties.

b. *Ecological Risk Assessment*

The Ecological Risk Assessment shall address the following: (1) Definition of objectives, (2) Characterization of site and potential receptors, (3) Selection of chemicals, species and end points for risk evaluation, (4) Exposure assessment, (5) Toxicity assessment, (6) Risk characterization, and (7) Limitations/uncertainties

Risk Assessment Deliverables

The Respondents shall provide EPA and the Tribe with the following deliverables as part of this task:

1. Draft Baseline Human Health and Ecological Risk Assessments (Major Deliverable)

2. Final Baseline Human Health and Ecological Risk Assessments (Major Deliverable)

TASK 8 TREATABILITY STUDIES (RI/FS Guidance, Section 5)

If appropriate, treatability testing will be performed by the Respondents to assist in the detailed analysis of remedial alternatives. The Respondents will identify in a Technical Memorandum on Candidate Technologies for EPA and Tribal review and EPA approval in consultation with the Tribe, candidate technologies for a treatability studies program during project planning/scoping and during the preparation of the RI Report. The listing of candidate technologies will cover the range of technologies required for an alternative analysis for the Site. The specific data requirements for the potential testing program will be determined and refined during RI field investigation and evaluation and the development and screening of remedial alternatives. The following activities will be performed by the Respondents:

a. *Conduct Literature Survey and Determine the Need for Treatability Testing*

The Respondents will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance ("O&M") requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for this Site on the basis of available information, treatability testing may be required. After completion of the Final RI report and where it is determined by EPA, in consultation with the Tribe, that treatability testing is required, unless the Respondents can demonstrate to EPA's satisfaction that treatability testing is not needed, the Respondents will submit a statement of work to EPA and the Tribe outlining the steps and data necessary to evaluate and initiate the treatability testing.

b. *Evaluation of Treatability Testing*

Once a decision has been made to perform treatability testing, the Respondents and EPA, in consultation with the Tribe, will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To address the timely and effective completion of a treatability testing program, the Respondents will submit a Treatability Testing Work Plan for EPA and Tribal review and EPA approval, in consultation with the Tribe.

Treatability Testing and Deliverables

1. Technical Memorandum on Candidate Technologies

2. Treatability Testing Work Plan

   The Respondents will prepare a Treatability Testing Work Plan for EPA review and approval, in consultation with the Tribe, describing the Site background, remedial technologies to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well.

   If pilot scale treatability testing is to be performed, the Treatability Testing Work Plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-Site, permitting requirements will be addressed. The Respondents shall submit the Treatability Testing Work Plan within a time frame to be agreed to by EPA.

3. Treatability Testing Sampling and Analysis Plan (SAP)

   If the original QAPP or FSP is not adequate to address the activities to be performed during the treatability tests, a separate Treatability Testing SAP or amendment to the original RI/FS SAP will be prepared by the Respondents within the time frame defined in the Treatability Testing Work Plan.

4. Treatability Testing Health and Safety Plan (HSP)

   If the RI/FS Health and Safety Plan is not adequate to address the activities to be performed during the treatment tests, a separate or amended Treatability Testing Health and Safety Plan will be developed by the Respondents within the time frame specified in the Treatability Testing Work Plan.

5. Treatability Testing Evaluation Report

Following completion of treatability testing, the Respondents will analyze and interpret the testing results in a Draft Treatability Testing Report submitted to EPA for review and comment, in consultation with the Tribe. Depending on the sequence of activities, this report may be a part of the Final RI/FS Report or a separate deliverable. The Treatability Testing Report will evaluate each technology's effectiveness, implementability, cost, and actual results as compared with predicted results. The Treatability Testing Report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 9 DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

The development and screening of remedial alternatives is performed to develop an appropriate range of cleanup options that will be evaluated to obtain the Site remedial action objectives (RAOs). This range of alternatives should include, as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of contaminants, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated contaminants are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no action alternative. The following activities will be performed by the Respondents as a function of the development and screening of remedial alternatives.

a. *Refine and Document Remedial Action Objectives*

Based on the baseline risk assessment, the Respondents will review and, if necessary, modify the Site-specific remedial action objectives. The revised RAOs will be documented in a Technical Memorandum on Revised Remedial Action Objectives that will be reviewed and approved by EPA, in consultation with the Tribe. This technical memorandum shall be submitted within the time frame specified in the Work Plan. The revised RAOs will specify the contaminants and media of concern, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure pathway).

b. *Develop General Response Actions*

The Respondents will develop general response actions for each medium of concern defining containment, treatment, excavation, or other actions, singly or in combination, to satisfy the remedial action objectives.

c. *Identify Areas or Volumes of Media*

The Respondents will identify areas or volumes of media, to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will also be taken into account.

d. *Identify, Screen, and Document Remedial Technologies*

The Respondents will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be technically implemented at the Site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options will be summarized for inclusion in a Technical Memorandum on Remedial Technologies, Alternatives, and Screening for EPA and Tribal review. The reasons for eliminating technologies must be specified.

e. *Assemble and Document Alternatives*

The Respondents will assemble selected representative technologies into alternatives for each affected medium and/or contaminant. Together, all of the alternatives will represent a range of treatment and containment combinations that will address the Site as a whole. A summary of the assembled alternatives and their related ARARs will be prepared by the Respondents for inclusion in the Technical Memorandum on Remedial Technologies, Alternatives, and Screening for EPA and Tribal review and EPA approval, in consultation with the Tribe. The reasons for eliminating alternatives during the preliminary screening process must be specified.

f. *Refine Alternatives*

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by the proposed process. Sufficient information will be collected for an adequate comparison of alternatives. RAOs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the baseline risk assessment report. Additionally, action-specific ARARs will be updated, as the remedial alternatives are refined.

g. *Conduct and Document Screening Evaluation of Each Alternative*

The Respondents will perform a final screening evaluation based on short and long-term aspects of effectiveness, implementability, and relative cost. Generally, this screening

evaluation is only necessary when there are many feasible alternatives available for detailed analysis. The screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondents will prepare the Technical Memorandum on Remedial Technologies, Alternatives, and Screening for EPA and Tribal review summarizing the results and reasoning employed in screening, assembling alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening.

Remedial Alternatives Development and Screening Deliverables

The deliverables below will be prepared and submitted to EPA and the Tribe for review. The Respondents will modify these documents and submit as part of the Draft FS Report if necessary to address EPA comments, prepared in consultation with the Tribe, to assure identification of a complete and appropriate range of viable alternatives to be considered. These deliverables will document the methods, rationale, and results of the alternatives screening process.

1. Technical Memorandum on Revised RAOs

2. Technical Memorandum on Remedial Technologies, Alternatives, and Screening

TASK 10 DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES (RI/FS Guidance, Section 6)

The detailed analysis will be conducted by the Respondents to provide EPA and the Tribe with the information needed to allow for the selection of a Site remedy. This analysis is the final task to be performed by the Respondents during the FS.

The Respondents will conduct a detailed analysis of alternatives which will consist of an analysis of each option against the set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

a. *Apply Nine Criteria and Document Analysis*

The Respondents will apply the nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative (or process) will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation

criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) costs; (8) Tribal acceptance; and (9) community acceptance. (Note: Criterion 9 is considered after the RI/FS report has been released to the general public.) For each alternative, the Respondents should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion of the individual criterion assessment.

b. *Compare Alternatives Against Each Other and Document the Comparison of Alternatives*

The Respondents will perform a comparative analysis between the remedial alternatives which remain after screening. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. The final identification and selection of the preferred alternative will be made by EPA, in consultation with the Tribe. This process and the results of the comparative analysis will be documented in a Technical Memorandum Summarizing the Comparative Analysis of the Alternatives and submitted within the time frame specified in the RI/FS Work Plan.

Detailed Comparative Analysis of Remedial Alternatives Deliverables

1. Technical Memorandum Summarizing the Comparative Analysis of the Alternatives

2. Feasibility Study Report (Major Deliverable)

   The Respondents will submit a Draft FS Report to EPA and the Tribe for review and to EPA for approval, in consultation with the Tribe. Once comments have been addressed by the Respondents to EPA's satisfaction, the final FS report may be bound with the RI report.

   The Draft FS Report will combine the alternatives development and screening, the detailed comparative analysis, and the results of the comparative risk analysis. The FS Report, as ultimately adopted, or amended by EPA, and the administrative record, provides a basis for remedy selection by EPA, in consultation with the Tribe, and documents the development and analysis of remedial alternatives. The Respondents will refer to the RI/FS Guidance for an outline of the report format and the required report content. The Respondents shall submit the Draft FS Report within the time frame specified in the Work Plan.

DELIVERABLES SUMMARY

All deliverables will be provided in a draft format for EPA and Tribal review and for EPA approval prior to finalization. EPA and the Tribe reserve the right to comment on, and EPA reserves the right to modify and direct changes for all deliverables.

If EPA disapproves of, or requires revisions in whole or in part, to any deliverable or submittal identified in this SOW as a Major Deliverable from the Respondents, the Respondents shall amend and submit to EPA and the Tribe a revised draft submittal or deliverable which is responsive to the directions in all EPA comments within thirty (30) days of receiving EPA's written comments. If EPA disapproves of, or requires revisions in whole or in part, to any other deliverable or submittal which is not a "Major Deliverable," Respondents shall amend and submit to EPA a revised draft submittal or deliverable which is responsive to the directions in all EPA written comments within twenty (20) days of receiving EPA comments, unless otherwise noted by EPA that the revision can be submitted as part of a major deliverable. Due to the short time frame associated with the proposed completion of the RI/FS, the EPA and Tribe will return comments on deliverables to Respondents within thirty (30) days of submittal.

Following approval or modification by EPA, all final deliverables or submittals shall become incorporated by reference to this SOW and shall be enforceable by EPA through the RI/FS Administrative Order on Consent.

SCHEDULE OF DELIVERABLES

Note: Items in bold are "Major Deliverables". Other deliverables are considered "Interim Deliverables".

TASK NO.	DELIVERABLE	DUE DATE
Task 3	**Draft Project Management Plan**	Within 30 days of signed AOC
	Final Project Management Plan	Within 30 days of receipt of written comments from EPA
	Draft Data Management Plan	Within 30 days of signing AOC
	Final Data Management Plan	Within 20 days of receipt of written comments from EPA
	Project Schedule, including meeting schedules and agendas	To be submitted with the Project Management Plan
	Monthly Reports	By the 10th of each month, starting first month after signing AOC
	Meeting Minutes	Within 5 days of each meeting
Task 5	Draft Summary of Data Gaps Report	Within 45 days of signing AOC
	Final Summary of Data Gaps Report	Within 20 days of receipt of written comments from EPA
	Draft RI/FS Work Plan	Within 60 days of Final Summary of Data Gaps Report
	Final RI/FS Work Plan	Within 30 days of receipt of written comments from EPA

TASK NO.	DELIVERABLE	DUE DATE
	Draft/Final Sampling and Analysis Plan (including Field Sampling Plan and Quality Assurance Project Plan)	To be submitted with the RI/FS Work Plan
	Demonstration of laboratory qualification	4 weeks prior to proposed sampling collection
	Draft/Final Health and Safety Plan	To be submitted with the RI/FS Work Plan
Task 6	Notification of field sampling or characterization event	2 weeks in advance of each field sampling or characterization event
	Notification of field activities completion	Within 5 days of completion of field work
	Technical Memorandum: Modeling of Site Characteristics (If modeling is determined to be appropriate)	TBD (in RI/FS Work Plan)
	Site Conceptual Model (Submit together with the Draft RI Report)	TBD (in RI/FS Work Plan)
	Preliminary Site Characterization Summary Report (Any revision will be submitted as part of the Draft RI Report)	TBD (in RI/FS Work Plan)
	Draft Remedial Investigation (RI) Report	TBD (in RI/FS Work Plan)
	Final Remedial Investigation (RI) Report	TBD (in RI/FS Work Plan)
Task 7	**Draft Baseline Human Health and Ecological Risk Assessments**	TBD (in RI/FS Work Plan)
	Final Baseline Human Health and Ecological Risk Assessments	TBD (in RI/FS Work Plan)
Task 8	Technical Memorandum: Treatability Testing Candidate Technologies	TBD (in RI/FS Work Plan)

TASK NO.	DELIVERABLE	DUE DATE
	Draft/Final Treatability Testing Work Plan	TBD (in RI/FS Work Plan)
	Draft/Final Treatability Testing Sampling and Analysis Plan	TBD (in RI/FS Work Plan)
	Draft/Final Treatability Testing Health and Safety Plan	TBD (in RI/FS Work Plan)
	Draft/Final Treatability Testing Evaluation Report	TBD (in RI/FS Work Plan)
Task 9	Draft Technical Memorandum: Revised Remedial Action Objectives (Any revision will be submitted as part of the Draft FS Report)	TBD (in RI/FS Work Plan)
	Draft Technical Memorandum: Remedial Technologies, Alternatives, and Screening (Any revision will be submitted as part of the Draft FS Report)	TBD (in RI/FS Work Plan)
Task 10	Draft/Final Technical Memorandum: Summary of Comparative Analysis of the Alternatives	TBD (in RI/FS Work Plan)
	Draft Feasibility Study Report	TBD (in RI/FS Work Plan)
	Final Feasibility Study Report	TBD (in RI/FS Work Plan)

ATTACHMENT 1

Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

Air/Superfund National Technical Guidance Study Series Volumes I, II, III, and IV (EPA 450/1-89-001, 002, 003, 004, July, 1989)

American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.

CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (DRAFT), OSWER Directive No. 9234.1-01 and -02.

Community Relations in Superfund, A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.

Community Relations During Enforcement Activities and Development of the Administrative Record, OSWER Directive No. 9836.0-1A.

A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/OOla, August 1987, OSWER Directive No. 9355.0-14.

Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.

DQO Process for Site Investigations, EPA/600/R-00/007, January 2000.

Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference Document, EPA 600/3-89/013, March, 1989.

EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.

Environmental Sampling Digital Data Deliverable Description, EPA Region 10.

Federal Acquisition Regulation, Washington, DC: U.S. Government Printing Office (revised periodically).

Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final, U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive NO. 9355.3-01.

Guidance for the DQO Process, EPA/600/R-96/055, September 1994.

Guidance for DQ Assessment Process: Practical Methods for Data Analysis, EPA/600/R-98-084.

Guidance for Data Usability in Risk Assessment, EPA/540/G-90/008, September, 1990.

Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.

Guidance on Expediting Remedial Design and Remedial Actions, EPA/540/G-90/006, August 1990.

Guidance for Preparation of Operating Procedures for Quality Related Documents, EPA/240/B-01/004, March 2001.

Guidance on Quality Assurance Project Plans, EPA/600/R-98/018, February 1998.

Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.

Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.

Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.

Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.

Human Health Evaluation Manual Supplemental Guidance: "Standard Default Exposure Factors" OSWER Directive 9285.6-01, March 25, 1991.

Interim Guidance on Administrative Records for Selection of CERCLA Response Actions, OSWER Directive No. 9833.3A, March 1, 1989.

Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive *No.* 9234.0-05.

Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies, Appendix A to OSWER Directive No. 9355.3-01.

Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1992).

National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.

NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.

Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.

OSHA Regulations in 29 CFR 1910.120, Federal Register 45654, December 19, 1986.

Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs), August 28, 1990, OSWER Directive No. 9835.15.

Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.

Presumptive Remedies for Soils, Sediments and Sludges at Wood Treater Sites, EPA/540-R-95-128.

Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.

Quality in the Constructed Project: A Guideline for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.

Remedial Design and Remedial Action Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1995, OSWER Directive No. 9355.5-22.

Revision of Policy Regarding Superfund Project Assignments, OSWER Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-2]

Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A) Interim Final, EPA 540/1-89, December, 1989.

Risk Assessment Guidance for Superfund, Volume II: Environmental Evaluation, EPA 540/1-89/001, March, 1989.

Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions, OSWER Directive No. 9355.0-30, April 22, 1991.

Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.

Site Mapping Guidelines, EPA Region 10, August 15, 2000.

Standard Operating Safely Guides, U.S. EPA, Office of Emergency and Remedial Response, November l9g4.

Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.

Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.

Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]

Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/540/G-90/001.

Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.

TLVs' Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.

Treatability Studies for Wood Preserving Sites, EPA/68-C2-0108, EPA/68-C5-0001, and EPA/600-R-98-026.

Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.

USEPA CLP National Functional Guidelines for Organic Data Review, EPA/540/R-94-012, February 1994.

USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA/540/R-94-013, February 1994.

USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, U.S. EPA, Office of Emergency and Remedial Response, July 1988.

USEPA Contract Laboratory Program Statement of Work for Organic Analysis, U.S. EPA, Office of Emergency and Remedial Response, February 1988.